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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/760,065	01/12/2001	Appadurai Thangaraj	4355D (DIV)	3120

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EXAMINER

NGUYEN, NGOC YEN M

ART UNIT	PAPER NUMBER
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1754

9

DATE MAILED: 05/22/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

MF=9

**Office Action Summary**

Applicati n No.

09/760,065

Applicant(s)

THANGARAJ ET AL.

Examiner

Ngoc-Yen M. Nguyen

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --****Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 March 2002.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 26-59 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 26-59 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_                      6) ☐ Other: \_\_\_\_\_

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The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 26-59 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 26, it is unclear if the "liquid water and/or water vapor" and the "body of liquid water to produce the aqueous solution of chlorine dioxide" are part of the claimed device. If they are, the device of claim 26 would be unstable, i.e., the device would be transient with the water constantly passes through the membrane to facilitate the reaction between the chlorite and the acid forming component. If they are not, it is unclear how the device can produce "an aqueous solution of chlorine dioxide" without any water.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 26, 28-34, 39-40, 48 are rejected under 35 U.S.C. 102(b) as being anticipated by CN 1,104,610 using Derwent abstract 1997-311,227 for the English abstract.

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CN '610 discloses a bag for generating chlorine dioxide used to disinfect drinking water, fruit and vegetables, which is manufactured by steps including (1) melting Chinese wax, stearic acid, bees wax or paraffin wax; (ii) adding sodium chlorite to form microcapsules; (iii) mixing the dry tartaric acid or oxalic acid particles; and (iv) placing the mixture into a cloth bag (note English abstract). The cloth bag is considered as the claimed water insoluble membrane. When the bag is placed in water, the bag is considered as the second zone and the water is considered as the first zone. Since the tartaric acid as used in CN '610 is the same as the one used in the claimed invention, the pH of the tartaric acid when dissolved in water would inherently be below about 5 as required in the instant claim 39 and the produced aqueous solution of chlorine dioxide would inherently have the same pH as required in the instant claim 40.

The bag containing the mixture of wax, sodium chlorite and tartaric acid as disclosed in CN '610 anticipates the claimed device.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 49-59 are rejected under 35 U.S.C. 103(a) as being unpatentable over CN '610.

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The CN '610 discloses that the wax and the chlorite were formed into microcapsules, however, no size was disclosed.

However, the microcapsules as disclosed in CN '610 can be considered as tablets, powders, granules, pellets or agglomerates depending on its size and shape, especially because a wax (i.e. a binder) was used. It would have been obvious to one ordinary skill in the art to optimize the size of the microcapsules of CN '610 in order to obtain the best results.

Applicant's arguments filed March 5, 2002 have been fully considered but they are not persuasive.

Applicants argue that it cannot be seen how a cloth bag would be deemed to be the equivalent of a water permeable membrane.

As required in Applicants' claim 26, the membrane comprises a material which permits (a) liquid water and/or water vapor to pass through the membrane into the enclosed space to thereby allow the metal chlorite and the acid forming component to react to produce chlorine dioxide and (b) the so produced chlorine dioxide to pass through the membrane into a body of liquid water to produce the aqueous solution of chlorine dioxide. In CN '610, the chlorine dioxide is generated by placing the bag, which contains sodium chlorite and dry tartaric acid, in water, this clearly suggests that the water must pass through the bag to allow the chlorite and the acid inside the bag to react. CN '610 also discloses that the generated chlorine dioxide is used to disinfect fruit or vegetables, this fairly suggests that the generated chlorine dioxide must pass through the bag to

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go outside of the bag in order to disinfect fruit or vegetables, because no food or vegetable was put in the bag. Thus, the bag as disclosed in CN '610 permits both (a) and (b) as required in Applicants' claim, and the bag in CN '610 is considered the same the claimed membrane.

Applicants argue that a cloth bag would allow the free, unhindered passage of water therein while a water permeable membrane would allow the chlorine dioxide to be generated and released to the environment in a controlled manner.

Applicants' claims do not require that the chlorine dioxide be generated and released in "a controlled manner".

Applicants' argue that the sodium chlorite in CN '610 exists in the form of microcapsules while the device of the claimed invention does not require the presence of any particular form of the chlorite nor any additional coating thereon.

The language of "containing" in Applicants' claims do not exclude the presence of the wax or any additional material disclosed in CN '610, it should be noted that the presence of additional material beside the chlorite and the acid forming component, such as paraffin wax tableting binder, is allowed in Applicants' claimed invention (note page 19, lines 13-27).

Applicants urge that the rate of generation and release of chlorine dioxide is readily adjusted as desired by selecting a membrane with the desired degree of water permeability.

Again, Applicants' claims do not require any rate of generation and release of chlorine dioxide.

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Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Ngoc-Yen Nguyen whose telephone number is (703) 308-2536. The examiner is currently on a part time schedule.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Stanley Silverman, can be reached on (703) 308-3837. The fax phone number for this Group is (703) 872-9311 (for OFFICIAL After Final amendment only) or (703) 872-9310 (for all other OFFICIAL faxes). UNOFFICIAL fax can be sent to (703) 305-6078.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.

N. M. Nguyen  
May 16, 2002

  
N. M. Nguyen  
Primary Examiner  
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